

# Package ‘waterfall’

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**Type** Package

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**Title** Waterfall Charts in R

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**Depends** R (>= 2.0.0), lattice

**Description** This package provides both traditional and lattice graphics implementations of waterfall charts.

**License** BSD

**URL** <http://hg.jameshoward.us/waterfall>

**LazyLoad** yes

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waterfall-package      *Waterfall Charts in R*

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### Description

Creates waterfall charts in R using traditional and lattice graphics

### Details

This package contains a collection of graphical utilities and sample data for demonstration. For a complete list, use `library(help="waterfall")`.

### Author(s)

James P. Howard, II <jh@jameshoward.us>

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jaquith      *Sample Business-Adjusted Risk Data*

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### Description

This dataset provides the sample business-adjusted risk from *Security Metrics* to illustrate non-financial waterfall charts.

### Usage

```
data(jaquith)
```

### Format

A data frame with 9 rows and 2 columns.

[,1]	factor	character	Factor label
[,2]	score	numeric	Relative score

### Details

The dataset represents a sample business-adjusted risk calculation.

### References

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-171.

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rasiel	<i>Sample Financial Data</i>
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**Description**

This dataset provides the sample financial data used in *The McKinsey Way* to illustrate financial waterfall charts.

**Usage**

```
data(rasiel)
```

**Format**

A data frame with 5 rows and 3 columns.

[,1]	label	character	Column label
[,2]	value	numeric	Column height
[,3]	subtotal	character	Group and subtotal labels

**Details**

The dataset represents a profit and loss statement for the fictional ACME Widget Corporation for 1998.

**References**

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 115-116.

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waterfallchart	<i>Waterfall Charts in R using Lattice</i>
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**Description**

Creates a waterfall chart using the 'Lattice' package.

**Usage**

```
waterfallchart(x, data, ...)
```

```
## S3 method for class 'formula'
waterfallchart(x, data=NULL, groups=NULL,
horizontal=FALSE, panel=lattice.getOption("panel.waterfallchart"),
prepanel=lattice.getOption("prepanel.waterfallchart"), box.ratio = 2,
origin = 0, ...)
```

**Arguments**

x	a formula describing the form of conditioning plot. The formula is generally of the form 'y ~ x   g1 * g2 * ...', indicating that plots of 'y' (on the y axis) versus 'x' (on the x axis) should be produced conditional on the variables 'g1, g2, ...'. However, the conditioning variables 'g1,g2,...' may be omitted.
data	a data frame containing values (or more precisely, anything that is a valid 'envir' argument in 'eval', e.g., a list or an environment) for any variables in the formula, as well as 'groups' and 'subset' if applicable. If not found in 'data', or if 'data' is unspecified, the variables are looked for in the environment of the formula.
groups	a variable or expression to be evaluated in the data frame specified by 'data', expected to act as a grouping variable within each panel, typically used to distinguish different groups by varying graphical parameters like color and line type. Unlike with the <a href="#">barchart</a> function, groups specifies where subtotals columns, should appear. There is a subtotal created for each group specified. If no groups are given, a summary column is still reported.
horizontal	This argument is used to process the arguments to these high level functions, but more importantly, it is passed as an argument to the panel function, which is supposed to use it as appropriate.
panel	This draws the actual plot after <a href="#">bwplot</a> has done the difficult work of processing the formula.
prepanel	This function returns the <a href="#">bwplot</a> information on the number of columns to display and where to place labels.
box.ratio	specifies the ratio of the width of the rectangles to the interrectangle space.
origin	initial offset relative to the x axis. The value serves as the logical starting point for the first column and any summary column. Defaults to 0.
...	further arguments

**Details**

This function closely mimics the [barchart](#) interface, but provides a type of chart called a waterfall plot, showing how multiple subvalues contribute to a total sum.

The bulk of the work is actually processed in [bwplot](#) which defines where tickmarks and other information outside the plot itself are placed. Only a formula method is provided.

Matrix and vector interfaces are not provided because mimicing the behavior of [barchart](#) for those interfaces produces unintelligible and undefined graphic output.

**References**

James P. Howard, II, *FIXME*.

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-172.

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 113-118.

**See Also**

[barchart](#), [waterfallplot](#)

**Examples**

```
data(rasiel)
data(jaquith)
waterfallchart(value~label, data=rasiel, groups=subtotal)
waterfallchart(factor~score, data=jaquith)
```

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 waterfallplot

*Waterfall Charts in R using traditional graphics*


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**Description**

Creates a waterfall plot with vertical or horizontal bars.

**Usage**

```
waterfallplot(height, ...)

## Default S3 method:
waterfallplot(height, width=1, space=NULL, names.arg=NULL, horiz=FALSE,
              density=NULL, angle=45, col=NULL, border=par("fg"),
              main=NA, sub=NA, xlab=NULL, ylab=NULL, xlim=NULL,
              ylim=NULL, xpd=TRUE, axes=TRUE, axisnames=TRUE,
              cex.axis=par("cex.axis"), cex.names=par("cex.axis"),
              plot=TRUE, axis.lty=0, offset=0, add = FALSE,
              summary=FALSE, rev=FALSE, ...)
```

**Arguments**

height	a vector of values describing the height of the bars that make up the plot. Matrices are not supported.
width	optional vector of bar widths. Re-cycled to length the number of bars drawn. Specifying a single value will have no visible effect unless 'xlim' is specified.
space	the amount of space (as a fraction of the average bar width) left before each bar. May be given as a single number or one number per bar. If not given explicitly, it defaults to 0.2
names.arg	a vector of names to be plotted below each bar. If this argument is omitted, then the names are taken from the 'names' attribute of 'height.'
horiz	a logical value. If 'FALSE', the bars are drawn vertically with the first bar to the left. If 'TRUE', the bars are drawn horizontally with the first at the bottom.
density	a vector giving the density of shading lines, in lines per inch, for the bars or bar components. The default value of 'NULL' means that no shading lines are drawn. Non-positive values of 'density' also inhibit the drawing of shading lines.

angle	the slope of shading lines, given as an angle in degrees (counter-clockwise), for the bars or bar components.
col	a vector of colors for the bars or bar components. By default, grey is used.
border	the color to be used for the border of the bars. Use 'border = NA' to omit borders. If there are shading lines, 'border = TRUE' means use the same colour for the border as for the shading lines.
main, sub	overall and sub title for the plot.
xlab	a label for the x axis.
ylab	a label for the y axis.
xlim	limits for the x axis.
ylim	limits for the y axis.
xpd	logical. Should bars be allowed to outside region?
axes	logical. If 'TRUE', a vertical (or horizontal, if 'horiz' is true) axis is drawn.
axisnames	logical. If 'TRUE', and if there are 'names.arg' (see above), the other axis is drawn (with 'lty=0') and labeled.
cex.axis	expansion factor for numeric axis labels.
cex.names	expansion factor for axis names (bar labels).
plot	logical. If 'FALSE', nothing is plotted.
axis.lty	the graphics parameter 'lty' applied to the axis and tick marks of the categorical (default horizontal) axis. Note that by default the axis is suppressed.
offset	initial offset relative to the x axis. The value serves as the logical starting point for the first column and any summary column. Defaults to 0.
add	logical specifying if bars should be added to an already existing plot; defaults to 'FALSE'.
summary	create a summary column. A summary column provides a final sum column showing the relative change from the offset. If a summary is requested and names.arg is set, the names.arg vector must include one extra entry with the summary column's name. Defaults to FALSE.
rev	reverse the order of columns? Defaults to FALSE.
...	arguments to be passed to/from other methods. For the default method these can include further arguments (such as 'axes', 'asp' and 'main') and graphical parameters (see 'par') which are passed to 'plot.window()', 'title()' and 'axis'.

### Details

This function closely mimics the [barplot](#) interface, but provides a type of chart called a waterfall plot, showing how multiple subvalues contribute to a total sum.

This is a generic function, it currently only has a default method. A formula interface may be added eventually.

### Value

A numeric vector say 'mp', giving the coordinates of *all* the bar midpoints drawn, useful for adding to the graph.

**References**

James P. Howard, II, FIXME.

Andrew Jaquith, *Security Metrics: Replacing Fear, Uncertainty, and Doubt* (Boston: Addison-Wesley Professional, 2007), 170-172.

Ethan M. Rasiel, *The McKinsey Way: Using the Techniques of the World's Top Strategic Consultants to Help You and Your Business* (New York: McGraw-Hill, 1999), 113-118.

**See Also**

[barplot](#), [waterfallchart](#)

**Examples**

```
data(rasiel)
waterfallplot(rasiel$value, names.arg=rasiel$label)
```

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